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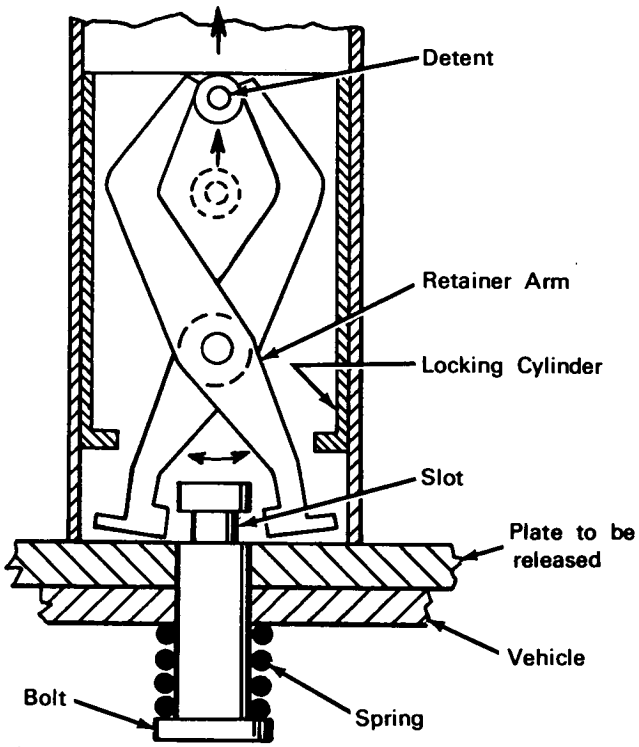
NASA TECH BRIEF

This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

Simple Mechanism Combines Positive Locking and Quick-Release Features



The problem: To design a simple device which would hold two objects together securely and quickly release them on demand.

The solution: A quick-release mechanism shown in cross section.

How it's done: One object, such as a plate, is held to another object, such as a vehicle, by a spring-loaded slotted bolt, which is locked in position by two retainer arms. The retainer arms are constrained from movement by a locking cylinder. To release the plate, a detent is actuated to lift the locking cylinder and rotate the retainer arms free from contact with the slotted bolt head. As a result of this action, the spring-loaded bolt is ejected and the plate is released from the vehicle.

Notes:

1. Actuation of the slidable detent can be initiated by a squib, a fluid-pressure device, or a solenoid.
2. The principle of this device can be employed

(continued overleaf)

wherever a positive engagement that can be quickly released on demand is required. Some suggested applications of this principle are in coupling devices for load-carrying carts or trucks, hooks or pickup attachments for cranes, and quick-release mechanisms for remotely controlled manipulators.

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: Lafayette B. Clayton
Hughes Aircraft Company under NASA contract to
Jet Propulsion Laboratory (WOO-4)